

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-66 are presently active in this case, Claims 21-22, 43, and 45-66 having been withdrawn from consideration.

In the outstanding Official Action, the abstract of the disclosure was objected to because it contained more than one paragraph; Claims 1-2, 6-14, 20, 23-24, 28-35, 37, 42, and 44 were rejected under 35 U.S.C. 102(b) as being anticipated by Dabak, et al. (US Pat. Pub. 2002/0075904 A1, hereinafter "Dabak"); Claims 1, 20, 23, and 44 were rejected under 35 U.S.C. 102(b) as being anticipated by Koo (USP 5,047,859); Claims 3-5, and 25-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Dabak in view of Rafle, et al., (US Pat. Pub. 2002/0196844 A1); and Claims 15-19, 36, and 38-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over Dabak in view of Kingston, et al., (USP 6,373,910 B2).

In response to the objection to the Abstract, the Abstract has been rewritten to be a single paragraph and to be in the format required by the MPEP. The new Abstract finds support in the original Abstract, and no new matter has been added.

Applicants respectfully traverse the outstanding grounds for rejection, because in Applicants' view, the pending claims patentably define over the cited prior art references.

Briefly recapitulating, channel estimation is conventionally carried out using a dedicated, known training sequence. A portion of the channel's capacity may be allocated for this purpose. In the Bluetooth High-Rate specification such a provision does not exist.

However, the High Rate Bluetooth packet data structure has a small portion of fixed data, in particular the 16-bit synchronization word, which may be used as a training sequence.

For certain applications, however, this 16-bit sync word is inadequate for channel estimation training.

Applicants' invention as recited in Claim 1 is defined as follows:

1. A channel estimator for a packet data communications receiver, the channel estimator comprising: an input to receive data for symbols of a data packet transmitted over a channel to said receiver; a memory to store said received symbol data; a training sequence determiner to determine a training sequence using one or more variable data portions or fields of said data packet; and an adaptive filter coupled to said memory and to said training sequence determiner and configured to use said received symbol data and said training sequence to determine an estimate of a response of said channel.

The invention of Claim 1 addresses the problem of the conventional channel estimator by deriving longer training sequences using variable portions or fields of a packet data structure. These variable data portions or fields may comprise portions of the header (See Claims 6 and 11, for example) which are, in effect, known, such as the HR ID field of the packet header.

The outstanding grounds for rejection rely primarily on Dabak, which is next addressed.

Dabak describes a packet structure 200 having a sync field 202, an ARQ field 204 and a segmented payload field 206. The sync field comprises a preamble field 208 and a header field 210. Paragraph 0013 of Dabak clearly states that the preamble 208 aids in the initial symbol timing acquisition, carrier frequency offset estimation and channel estimation by the receiver in a wireless system like a Bluetooth system. The header 210 is used for purposes other than channel estimation, such as providing link layer information.

Therefore, Dabak appears to contemplate using only the preamble sequence 208 for channel estimation; that is, channel estimation based on a fixed data portion or field of the data packet. A disadvantage of such an approach, as discussed at page 22 of the

specification, is that, under certain conditions, the preamble may not be available for use for channel estimate training.

Dabak also describes retraining an equalizer throughout the segmented payload of the packet structure on the basis of the sync words 406 provided in each segment.

Notwithstanding that each retraining determination is similarly based on a fixed data portion, it is believed to be apparent that training and retraining inherently involves two (or more) separate sequence determinations. This is different from determining a training sequence using one or more variable data portions or fields of said data packet, as recited in each pending independent claim.

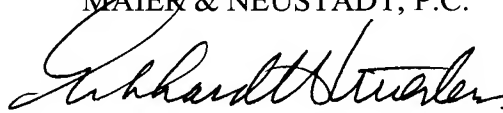
Moreover, the approach proposed in Dabak relies on allocating portions of the payload for use as sync words for retraining purposes. As set out in the final paragraph of page 34 of Applicants' specification, the claimed invention allows derivation of a training sequence or channel estimation from a packet data signal without channel capacity specifically allocated to provision of a training signal. Therefore, Applicants respectfully disagree with, and dispute, the apparent finding stated at page 6 of the Office Action, referring to paragraphs 0001, 0013-0016 of Dabak, that one or more variable data portions or fields of the data packet, as recited in Claim 23, is comparable to the 'header' and 'payload' portions of the data packet disclosed in Dabak.

For these reasons, Applicants respectfully submit that Dabak does not disclose or suggest determining a training sequence using one or more variable data portions or fields of said data packet, as claimed. As this deficiency is not believed to be remedied by the secondary references, it is respectfully submitted that the outstanding grounds for rejection based on the prior art are traversed.

Consequently, in view of the present amendment and in light of the above comments, no further issues are believed to be outstanding, and the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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